FEBS Letters 2003 vol.540 N1-3, pages 15-20

Cytotoxic ribonucleases: Molecular weapons and their targets

Makarov A., Ilinskaya O.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Many ribonucleases (RNases) are highly cytotoxic. In some cases, they attack selectively malignant cells, triggering apoptotic response, and therefore are considered as alternative chemotherapeutic drugs. Factors that determine the cytotoxicity of RNases, primarily of those of microbial origin, are reviewed here. These factors include catalytic activity, ability to escape natural inhibitors, stability, and efficiency of internalization. The latter is, in turn, determined by positive charge on the molecule and interaction with cell membrane. Cellular targets and molecular determinants of RNases decisive for their cytotoxic action are characterized.

http://dx.doi.org/10.1016/S0014-5793(03)00225-4

Keywords

Catalytic activity, Cytotoxic ribonuclease, Endocytosis, Positive charge, Stability, Structure